

EVALUATING THE ORAL HYGIENE LEVEL OF INSTITUTIONALIZED CHILDREN IN SIBIU COUNTY A CLINICAL STUDY

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Abstract: The article presents the oral hygiene level of institutionalized children and the importance that children from the social assistance and protection facilities in Sibiu County attach to the oral cavity hygiene.

Rezumat: Articolul prezintă nivelul de igienă orală a copiilor instituționalizați și importanța pe care o acordă copiii din unitățile de asistență și protecție socială ale Județului Sibiu igienizării cavității orale.

INTRODUCTION

After evaluating the level of oral health knowledge of institutionalized children, we considered it very useful for this study to also determine the oral hygiene level by assessing soft deposits (bacterial plaque) and hard deposits (dental calculus), using certain indicators from the specialized literature on a sample of children from several foster care centers and professional foster carers in Sibiu County.

MATERIAL AND METHOD

To evaluate the oral hygiene level, we have used a series of indexes present in the specialized literature:

- Green-Vermilion plaque (soft deposits) index;
- Calculus index;
- Dental-periodontal hygiene index.

By using bacterial plaque disclosing solutions, the soft deposits on the enamel surface and marginal periodontium were revealed, in terms of presence and intensity. As bacterial plaque disclosing solutions, we used 2% methylene blue and 1% gentian violet because:

- they are non toxic,
- they make a good color contrast,
- they are water soluble,
- they are easy to use,
- they color plaque immediately,
- their color is transient and not permanent.

The plaque disclosing solutions were applied by painting the teeth with cotton balls and to avoid coloring the soft tissue we used Vaseline as a barrier of protection.

The plaque disclosing was considered necessary for the child in order to be aware of the oral hygiene level and to check the effectiveness of teeth brushing and other measures to remove bacterial plaque.

To simplify the examination, in order to obtain the plaque index the soft deposits were observed using a probe touching the examined surface (vestibular sides at 16, 11, 31, 26 and lingual surfaces at 36 and 46) and the results were quantified using the following 0-3 evaluation scale, where:

- 0 – no deposits or coloring,
- 1 – deposits on less than one third of the surface or presence of exogenous coloring,
- 2 – deposits on more than one third and less than two thirds of the tooth surface,
- 3 – deposits on more than two thirds of the tooth surface.

Also by dental examination, the presence and intensity of dental calculus were evaluated, therefore calculating the calculus index using the following scale:

- 0 – no calculus,
- 1 – supragingival calculus on less than one third of the tooth surface,
- 2 – supragingival calculus on more than one third and less than two thirds of the tooth surface or the presence of subgingival calculus islands,
- 3 – supragingival calculus on more than two thirds of the tooth surface or continued subgingival calculus deposits.

In what follows we will present some of the examined cases in order to be able to highlight the important details regarding the calculation of the above presented indexes and to draw the conclusions of this research.

RESULTS AND DISCUSSIONS

Examined case no.1

To evaluate the oral hygiene level of the examined child, in the following we present a picture that shows the entire oral cavity:

The following indexes are calculated for the examined case, which are necessary to determine the value of the dental-periodontal hygiene index:

- Bacterial plaque index

$$IP = \frac{TS_1}{N} = \frac{14}{6} = 2,33$$

where:

PI – plaque index;

TS₁ – total scores of bacterial plaque intensity;

N – number of examined surfaces.

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Figure no. 1. The oral cavity - examined case no. 1



Table no. 1. The observed score of the bacterial plaque - case 1

Examined tooth	Bacterial plaque intensity
16	2
11	2
31	2
26	2
36	3
46	3
Total scores	14

The maximum possible value of the plaque index is 3. This index can also be calculated percentage-wise using the following formula:

$$IP(\%) = \frac{IP}{3} \times 100 = \frac{2,33}{3} \times 100 = 77,66\%$$

- *Calculus index*

Table no. 2. The observed score of the calculus - case 1

Examined tooth	Calculus intensity
16	1
11	0
31	0
26	1
36	0
46	0
Total scores	2

$$IT = \frac{TS_2}{N} = \frac{2}{6} = 0,33$$

where:

- CI – calculus index;
- TS₂ – total scores of calculus intensity;
- N – number of examined surfaces.

The maximum possible value of the calculus index is 3. This index can also be calculated percentage-wise using the following formula:

$$IT(\%) = \frac{IT}{3} \times 100 = \frac{0,33}{3} \times 100 = 11,11\%$$

To determine the value of the dental-periodontal hygiene index we calculated the arithmetic mean between the two previously calculated indexes.

$$IDP = \frac{IP + IT}{2} = \frac{2,33 + 0,33}{2} = 1,33$$

where:

- DPI – dental-periodontal index.

The maximum possible value of the dental-periodontal index is 3. This index can also be calculated percentage-wise using the following formula:

$$IDP(\%) = \frac{IDP}{3} \times 100 = \frac{1,33}{3} \times 100 = 44,33\%$$

By interpreting the value of this index we can

conclude that the dental- periodontal hygiene condition of this child is unsatisfactory.

Examined case no.2

To evaluate the oral hygiene level of the examined child, in the following we present a picture that shows the entire oral cavity:

Figure no. 2. The oral cavity – examined case no. 2



The following indexes are calculated for the examined case, which are necessary to determine the value of the dental-periodontal hygiene index:

- *Bacterial plaque index*

Table no. 3. The observed score of the bacterial plaque - case 2

Examined tooth	Bacterial plaque intensity
16	2
11	3
31	3
26	3
36	3
46	3
Total scoruri	17

$$IP = \frac{TS_1}{N} = \frac{17}{6} = 2,83$$

where:

- PI – plaque index;
- TS₁ – total scores of bacterial plaque intensity;
- N – number of examined surfaces.

The maximum possible value of the plaque index is 3. This index can also be calculated percentage-wise using the following formula:

$$IP(\%) = \frac{IP}{3} \times 100 = \frac{2,83}{3} \times 100 = 94,33\%$$

- *Calculus index*

Table no. 4. The observed score of the calculus - case 2

Examined tooth	Calculus intensity
16	1
11	0
31	0
26	1
36	1
46	1
Total scores	4

$$IT = \frac{TS_2}{N} = \frac{4}{6} = 0,66$$

where:

- CI - calculus index;
- TS₂ - total scores of calculus intensity;
- N - number of examined surfaces.

The maximum possible value of the calculus index is

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3. This index can also be calculated percentage-wise using the following formula:

$$IT(\%) = \frac{IT}{3} \times 100 = \frac{0,66}{3} \times 100 = 22,22\%$$

To determine the value of the dental-periodontal hygiene index we calculated the arithmetic mean between the two previously calculated indexes.

$$IDP = \frac{IP + IT}{2} = \frac{2,83 + 0,66}{2} = 1,74$$

where:

DPI – dental-periodontal index.

The maximum possible value of the dental-periodontal index is 3. This index can also be calculated percentage-wise using the following formula:

$$IDP(\%) = \frac{IDP}{3} \times 100 = \frac{1,74}{3} \times 100 = 58,16\%$$

By interpreting the value of this index we can conclude that the dental- periodontal hygiene condition of this child is poor.

CONCLUSIONS

- To evaluate the oral hygiene level we used a series of indexes present in the specialized literature.
- The dental-periodontal index was calculated as the arithmetic mean of the plaque index and the dental calculus index.
- Institutionalized children from foster care centers in Sibiu County have an unsatisfactory oral hygiene.

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